

## REMARKS

The following remarks are responsive to the June 18, 2007 Office Action. Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the following comments.

### **Claims 1-22 Are Not Obvious in View of Uraki, Otsubo, Freiwald, and DiCurcio**

In the June 18, 2007 Office Action, the Examiner rejects Claims 1-22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,977,515 issued to Uraki *et al.* ("Uraki") in view of U.S. Patent No. 6,507,000 issued to Otsubo *et al.* ("Otsubo"), U.S. Patent No. 6,693,255 issued to Freiwald *et al.* ("Freiwald"), and U.S. Patent No. 3,369,101 issued to DiCurcio ("DiCurcio").

### The Combination Of Uraki, Otsubo, Freiwald, And DiCurcio Does Not Disclose The Laser Head Recited By Claims 1-22

Applicants submit that the combination of Uraki, Otsubo, Freiwald, and DiCurcio does not disclose or suggest all the features recited by Claims 1-22 of the present application.

Uraki discloses an underwater laser system which comprises a plenum that isolates a dry, gas-filled region (in which the laser beam is able to propagate) from a surrounding water-filled region (Uraki, col. 8, lines 21-31). Uraki does not disclose or suggest that the plenum is "cooled by a cooling medium flowing through a coolant conduit," as recited by Claim 1.

Otsubo discloses a dust collector which requires a gap (Otsubo, col. 2, lines 57-58) between the dust collector and the workpiece to draw ambient air into the dust collector from outside the dust collector (Otsubo, col. 3, lines 42-43). Otsubo does not disclose or suggest that the dust collector is "cooled by a cooling medium flowing through a coolant conduit," as recited by Claim 1.

Freiwald discloses a cleaning head which allows the flow of ambient air from outside the cleaning head to cool the ablated material. Freiwald, col. 5, lines 40-44. Freiwald does not disclose or suggest that the ambient air cools the cleaning head and does not disclose or suggest that the cleaning head is "cooled by a cooling medium flowing through a coolant conduit," as recited by Claim 1. In addition, while Freiwald discloses that the reflective optics (e.g. mirrors) may be water-cooled (see, e.g., Friewald, col. 8, lines 48-49), Freiwald does not disclose or suggest water-cooling the cleaning head.

DiCurcio discloses cooling a flash lamp and laser rod within an optical cavity using cooling gas from a cooling conduit (DiCurcio, col. 4, lines 25-28). However, DiCurcio does not disclose or suggest a containment plenum as recited by Claim 1 and does not disclose or suggest cooling other system components beyond the flash lamp and laser rod. Therefore, DiCurcio does not disclose or suggest a containment plenum that is “cooled by a cooling medium flowing through a coolant conduit,” as recited by Claim 1.

Therefore, Applicants submit that the combination of Uraki, Otsubo, Freiwald, and DiCurcio does not disclose or suggest a “containment plenum ... cooled by a cooling medium flowing through a coolant conduit of the containment plenum” as recited by Claim 1. Similarly, Applicants submit that the combination of Uraki, Otsubo, Freiwald, and DiCurcio does not disclose a “confining means ... cooled by a coolant medium flowing through a cooling conduit of the confining means” as recited by Claim 19. Therefore, Claims 1 and 19 are patentably distinguished over the cited prior art references.

Claims 2, 12, 14, 15, 17, 18, 20, 21, and 22 depend from Claim 1. Claims 3, 4, and 5 depend from Claim 2. Claims 6 and 7 depend from Claim 5. Claims 8, 9, 10, and 11 depend from Claim 7. Claim 13 depends from Claim 12. Claim 16 depends from Claim 15. Thus, each of Claims 2-18 and 20-22 includes all the features of Claim 1 as well as other features of particular utility. Therefore, Claims 2-18 and 20-22 are also patentably distinguished over the cited prior art references. For at least the reasons stated above, Applicants respectfully request the Examiner withdraw the rejection of Claims 1-22 and pass these claims to allowance.

It Would Not Be Obvious To Combine Uraki And DiCurcio

In the June 18, 2007 Office Action, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to use a cooling conduit as taught by DiCurcio in the Uraki et al. system because “it is merely a part of the cooling system.” However, Applicants submit that there is no suggestion or motivation to combine these two references. DiCurcio discloses a cooling conduit for cooling of an optical cavity to counteract heat generated by a flash lamp and laser rod within the optical cavity. DiCurcio, col. 4, lines 25-28. However, in Uraki, the optical cavity containing a heat-generating laser light generator is spaced well away from the containment plenum. See, e.g., Uraki, Figures 1, 2, 7, 8. Therefore, utilizing the cooling conduit disclosed in DiCurcio to cool the optical cavity of the Uraki system would not provide

cooling of the containment plenum. Furthermore, neither Uraki nor DiCurcio (nor Otsubo or Freiwald) disclose a head or a containment plenum that is exposed to sufficient heat to warrant cooling using cooling conduits as disclosed by DiCurcio. Thus, there is no motivation for persons skilled in the art to modify the teaching of Uraki using the teaching of DiCurcio.

**The Rejection Of Claims 1-22 Is The Result Of Improper Hindsight Since There Is No Motivation To Combine**

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). There is no suggestion in the prior art, including in either Uraki, Otsubo, Freiwald, or DiCurcio, to combine the teachings of these four references by modifying the Uraki system to include cooling of the containment plenum through a coolant conduit. Without a teaching or suggestion in the prior art of the desirability of the combination, the Examiner's assertion that it would be obvious to one of ordinary skill in the art to make these combinations is an impermissible use of hindsight derived from the teachings of the present application. See, e.g., In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999).

**No Disclaimers or Disavowals**

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

**Co-Pending Applications of Assignee**

Applicants wish to draw to the Examiner's attention to the following co-pending applications of the present application's assignee.

**Application No.:** 10/690,833  
**Filing Date.:** October 22, 2003

Serial Number	Title	Filed
11/363,647	Laser Head for Irradiation and Removal of Material from a Surface of a Structure	02/28/06
11/653,081	Method and Apparatus for Material Processing	01/12/07
11/401,114	Method and Apparatus for Material Processing	04/10/06
11/363,805	Containment Plenum for Laser Irradiation and Removal of Material from a Surface of a Structure	02/28/06
11/401,116	Manipulation Apparatus for System that Removes Material from a Surface of a Structure	04/10/06
11/861,193	Method and Apparatus for Detecting Embedded Rebar Within an Interaction Region of a Structure	09/25/07
11/861,184	Method and Apparatus for Detecting Embedded Rebar Within an Interaction Region of a Structure	09/25/07
11/205,290	Method and Apparatus for Material Processing	08/16/05

### Summary

For at least the foregoing reasons, Applicants submit that Claims 1-22 are in condition for allowance, and Applicants respectfully request such action.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: October 25, 2007

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